SURFboard® SBG6580 Series Wi-Fi® Cable Modem Gateway

Strengthen your broadband leadership — Count on Motorola's SURFboard DOCSIS®/ EuroDOCSIS 3.0 solutions to help you deliver innovative, ultra-broadband data services and advanced high-bandwidth home networking to your premium customers.

Motorola's Service Assured DOCSIS 3.0 Solutions enable you to deliver increased bandwidth, enhance security, and cost-effectively deploy data services to your bandwidth-demanding consumers – all while maximizing current infrastructure investment and lowering capital spending.

Next Generation High-Bandwidth Services and Home Networking in a Stylish Package

The SBG6580 SURFboard Wi-Fi Cable Modem Gateway enables the delivery of innovative ultra-broadband data and multimedia services as well as high-bandwidth home networking. Designed for seamless mobility, Motorola's SBG6580 is a fully integrated all-in-one home networking solution that combines the functionality of a DOCSIS/EuroDOCSIS 3.0 cable modem, four-port 10/100/1000 Ethernet switch with advanced firewall, and an 802.11n Wi-Fi access point in a sleek, stylish package for the sophisticated consumer. It's the perfect networking solution for the home, home office, or small business, allowing users to create a custom network to share a single ultra-broadband connection, files, and networked peripherals using wired or Wi-Fi connectivity. Cost-effective, efficient, and secure, the SBG6580 enables users to maximize the potential of their existing resources, while benefiting from next generation high-bandwidth services.

Increased Data Rates

Utilizing the power of DOCSIS 3.0, the SBG6580 enables channel bonding of up to 8 downstream and 4 upstream channels – which allows an operator to offer their customers advanced multimedia services, capable of data rates of well over 300 Mbps in DOCSIS and 400 Mbps in EuroDOCSIS in the received (downstream) data stream and over 100 Mbps in the send (upstream) data stream. The SBG6580's high-speed services enable operators to:

- Protect their installed base of premium high-speed data customers.
- Deliver high-bandwidth, multimedia services to residential customers.
- Deliver competitive, high-capacity commercial services to their business customers.

The SBG6580 eliminates the need for stand-alone routers, hubs, and access points. Its four gigabit Ethernet RJ-45 ports, an integrated 802.11n Wi-Fi access point with an internal 2 x 2 antenna array, and switched on-board radios (2.4 or 5 GHz) enables users to maximize the high-bandwidth potential of their home or business network.

As part of Motorola DOCSIS 3.0 Ultra-Broadband family of products, the SBG6580 includes an enhanced tuner that supports up to a 1 GHz downstream input allowing operators to increase the frequency spectrum for deployment of new high-value services such as bandwidth on-demand, commercial services, interactive gaming, and IPTV to their customers.

Highlights

Easy to setup and use
Plug-and-play installation

Wi-Fi pairing button for easy Wi-Fi Protected Setup™ (WPS) Wi-Fi connection

Supports standard internet browser software

Front panel LEDs indicate status and simplify troubleshooting

User-friendly online diagnostics and configuration

Advanced Services Ready
DOCSIS/EuroDOCSIS 3.0 certified

Channel bonding of up to 8 downstream and 4 upstream channels increasing data rates of well over 300 Mbps in DOCSIS and 400 Mbps in EuroDOCSIS in the received (downstream) data stream and over 100 Mbps in the send (upstream) data stream.

1 GHz capable tuners

Supports IPv4 and IPv6 to expand network addressing capabilities

Versatile and Convenient
Backwards compatible to 802.11b/g

Backwards compatible to DOCSIS/ EuroDOCSIS 1.x and 2.0

Integrated 802.11n Wi-Fi access point, 2 x 2 antenna array.

Switched onboard radios: 2.4 or 5 GHz

Four gigabit Ethernet ports enable flexible, high-speed connectivity with Auto Negotiate and Auto MDIX

Compatible with Windows®, Macintosh®, and Unix® computers

Support for multicast IP services

Wi-Fi Access

One way to avoid the challenges of rewiring or contending with varying wiring in the home is to eliminate wires altogether. The SBG6580 is equipped with a next-generation 802.11n Wi-Fi access point.

802.11n: 802.11n, the most current superset of the widely used Wi-Fi standard utilized by consumers in more than 100 million deployed PCs and mobile devices, is a compelling networking option for operators and consumers. The SBG6580's 802.11n integrated access point eliminates the need for wires altogether – enabling users to easily wirelessly network all of their 802.11 b/g/n equipped devices.

Dual Radio Operation: The SBG6580 is configured with radio technology that offers 802.11 b/g at 2.4 GHz and 802.11n at 5 GHz to support maximum LAN flexibility. Switched radio operation enables the SBG6580 to work with the lowest common denominator Wi-Fi peripherals, allowing consumers to network previous and next-generation computers, gaming consoles, and other peripherals anywhere in the home.

With Motorola's SURFboard integrated home networking solutions, service providers can provide seamless interaction among consumer electronics, mobile handsets, and PC devices, enabling high-quality media streaming, and supporting efficient sharing of media within and outside of the connected home. Capable of supporting converged IP-based entertainment services, the SBG6580 enables the delivery of advanced whole home entertainment services and a consumer's personal media experiences.

More Highlights

Efficient
Stylish and space-saving enclosure

Compatible with Motorola's 3D-Reach® Wi-Fi adapters for easy expansion of the home local area network

Reliable and Secure
Wi-Fi security WEP/WPA/WPA2

Advanced firewall with DoS protection and intrusion prevention

Wi-Fi Wizard for secure PC client setup

Remote configuration and monitoring from the headend using SNMP and TFTP

Enhanced security: supports AES traffic encryption.

Provider Benefits
Flexible pricing options

Greater pricing flexibility resulting from multi-service packaging and migration of customers to higher-revenue / margin Wi-Fi offerings

Built-In Security

The SBG6580 is equipped with a number of security features to offer consumers peace of mind, including:

- Firewall with DoS protection and intrusion prevention
- DHCP, NAT, VPN endpoint, VPN tunneling
- Wi-Fi security WEP/WPA/WPA2 with easy setup wizard
- User-friendly, secure mobile pairing
    - Wi-Fi Wizard removes end-user complexity for secure PC client setup
    - Push button configuration for WPS compliant clients

User-friendly Installation

Motorola's integrated SURFboard solutions include stateful firewall protection and state of the art Wi-Fi network security. They are also shipped with a CD-ROM including Motorola's easy-to-use Wi-Fi installation wizard – an easy-to-use secure Wi-Fi network setup and connection tool – which seamlessly configures a secure Wi-Fi connection on a user's machine. When the Wi-Fi wizard is finished, a secure WPA (Wi-Fi Protected Access) – encrypted Wi-Fi connection is established to the gateway, protecting the user's machine from hacker attacks. Motorola's enhanced embedded software facilitates Wi-Fi deployments with high levels of quality, reliability, and customer satisfaction, with low operational and support costs for the MSO.

Service Assurance

Supporting the Wi-Fi home network is a new challenge for the cable industry. As the leading worldwide provider of DOCSIS products, Motorola is helping ease cable operators into Wi-Fi delivery. By combining the highest-performing and lowest cost of ownership modems in the industry, with easy-to-use Wi-Fi installation and pairing tools, as well as advanced remote management features, Motorola is offering an all-in-one approach to broadband home networking. In addition, Motorola's field-proven NBBS Device Management Platform provides the MSO with intelligent management, auto-provisioning, and remote management features to improve accuracy, efficiency, and customer satisfaction. These value-adding features enable remote device administration for improved accuracy and reduced support costs. Motorola's NBBS platform is a scalable, carrier-grade software platform that enables cable operators to remotely access, configure, monitor, and troubleshoot their full portfolio of consumer devices, home networks, and services.

ECOMOTO™

In addition to delivering high-quality gateways to its customers, Motorola is also committed to helping its customers reduce their environmental footprint. We approach this in several ways: improving the environmental profile of our products, running our operations in a safe and energy-efficient manner and helping our customers to be greener when they use our products.

Motorola's SURFboard portfolio of customer premises equipment (CPE) helps service providers lower their energy consumption, thereby helping them reduce their carbon footprint. Motorola has a global commitment to be part of the solution to climate change, and has worked for years to continually improve our environmental profile. We are in step with our customers and their increasing interest in partnering with a company that helps them reduce their environmental impact, while offering compelling products to help them grow their eco-conscious customer base.

Motorola is working to make products with a reduced environmental impact. In the development of our next-generation SURFboard portfolio of customer premises equipment, we have focused on energy efficiency, lead-free manufacturing, and packaging / recycling enhancements. Depending on models and market, our units are ENERGY STAR qualified and compliant with European Code of Conduct regulations. In addition, the devices and power supplies are lead-free and RoHS compliant. Finally, all new SURFboard CPE use environmentally friendly package designs. The CPE are available in single bulk pack boxes that eliminate the use of suspension plastic and reduce box size, thereby reducing waste and transport costs. Motorola's SURFboard modem's packaging is 100% recyclable and is marked with standard recycling codes to make it easier for our customers to identify recycling opportunities.

Specifications

GENERAL SPECIFICATIONS	
DOCSIS/EuroDOCSIS 3.0 certified (interoperable with DOCSIS/EuroDOCSIS 1.0, 1.1, and 2.0)	
Cable Interface	F-Connector, female 75 Ω
Network Interface	Four Gigbit (10/100/1000) Ethernet ports
Wi-Fi Interface	802.11n Wi-Fi (backwards compatible with 802.11b/g)
Dimensions	6.6 in x 1.9 in x 6.8 in (167 cm x 50 cm x 171.7 cm)
Regulatory	RoHS compliant, FCC, UL listed (U.S. and Canada), Industry Canada, CE, ENERGY STAR qualified, CoC compliant, MEPS Compliant

INPUT POWER	
North America	105 to 125 VAC, 60 Hz
Outside North America	100 to 240 VAC, 50 to 60 Hz

ENVIRONMENTAL	
Operating Temperature	32 °F to 104 °F (0 °C to 40 °C)
Storage Temperature	–22 °F to 158 °F (–30 °C to 70 °C)
Operating Humidity	5 to 95% R.H. (non-condensing)

DOWNSTREAM		
Modulation		64 or 256 QAM
Downstream Channel Capture		Two independent 32 MHz wideband tuners
Maximum Theoretical Data Rate		
	DOCSIS	343.072 Mbps (8 channels) / 42.884 (single channel) @ 256 QAM at 5.36 Msym/s
	EuroDOCSIS	444.928 Mbps (8 channels) / 55.616 (single channel) @ 256 QAM at 6.952 Msym/s
Maximum Bandwidth Required		
	DOCSIS	≤ 48 MHz/2
	EuroDOCSIS	≤ 64 MHz/2
Symbol Rate		
	DOCSIS	64 QAM 5.057 Msym/s; 256 QAM 5.361 Msym/s
	EuroDOCSIS	64 QAM 6.952 Msym/s; 256 QAM 6.952 Msym/s
Operating Level Range		–15 to 15 dBmV
Bonded Channel RF Level Tolerance		10dBmV
Input Impedance		75 Ω (nominal)
Frequency Range		DOCSIS and EuroDOCSIS 108 to 1002 MHz (edge-to-edge), Optional 91 to 1002 MHz (edge to edge)
Frequency Plan		
	EuroDOCSIS	Annex A
	DOCSIS	Annex B
	J-DOCSIS	Annex B, modified for Japan frequencies
Security		DOCSIS 3.0 Security (BPI+, EAE, AES, and SSD)
Network Management		SNMP v2 & v3
Provisioning		Supports IP addressing using IPv4 and/or IPv6 (dual stack)

UPSTREAM		
Modulation		QPSK and 8, 16, 32, 64, 128 QAM
Maximum Channel Rate		
	DOCSIS	131.072 Mbps (4 channels) / 32.768 Mbps (single channel): @ 128 QAM at 6.4 MHz
	EuroDOCSIS	131.072 Mbps (4 channels) / 32.768 Mbps (single channel): @ 128 QAM at 6.4 MHz
Channel Width		200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.4 MHz
Symbol Rates		160, 320, 640, 1280, 2560, 5120 ksym/s
Operating Level Range		Level range per channel (Multiple Transmit Channel mode disabled, or only Multiple Transmit Channel mode enabled with one channel in the TCS)
	DOCSIS/EuroDOCSIS	
	TDMA	
		Pmin to +57 dBmV (32 QAM, 64 QAM)
		Pmin to +58 dBmV (8 QAM, 16 QAM)
		Pmin to +61 dBmV (QPSK)
	S-CDMA	
		Pmin to +56 dBmV (all modulations), where: Pmin = +17 dBmV, 1280 kHz modulation rate
		Pmin = +20 dBmV, 2560 kHz modulation rate
		Pmin = +23 dBmV, 5120 kHz modulation rate
	Level range per channel (two channels in the TCS)	
	TDMA	
		Pmin to +54 dBmV (32 QAM, 64 QAM)
		Pmin to +55 dBmV (8 QAM, 16 QAM)
		Pmin to +58 dBmV (QPSK)
	S-CDMA	
		Pmin to +53 dBmV (all modulations), where: Pmin = +17 dBmV, 1280 kHz modulation rate
		Pmin = +20 dBmV, 2560 kHz modulation rate
		Pmin = +23 dBmV, 5120 kHz modulation rate
	Level range per channel (three or four channels in the TCS)	
	TDMA	
		Pmin to +51 dBmV (32 QAM, 64 QAM)
		Pmin to +52 dBmV (8 QAM, 16 QAM)
		Pmin to +55 dBmV (QPSK)
	S-CDMA	
		Pmin to +53 dBmV (all modulations), where: Pmin = +17 dBmV, 1280 kHz modulation rate
		Pmin = +20 dBmV, 2560 kHz modulation rate
		Pmin = +23 dBmV, 5120 kHz modulation rate
Output Impedance		75 Ω (nominal)

Specifications

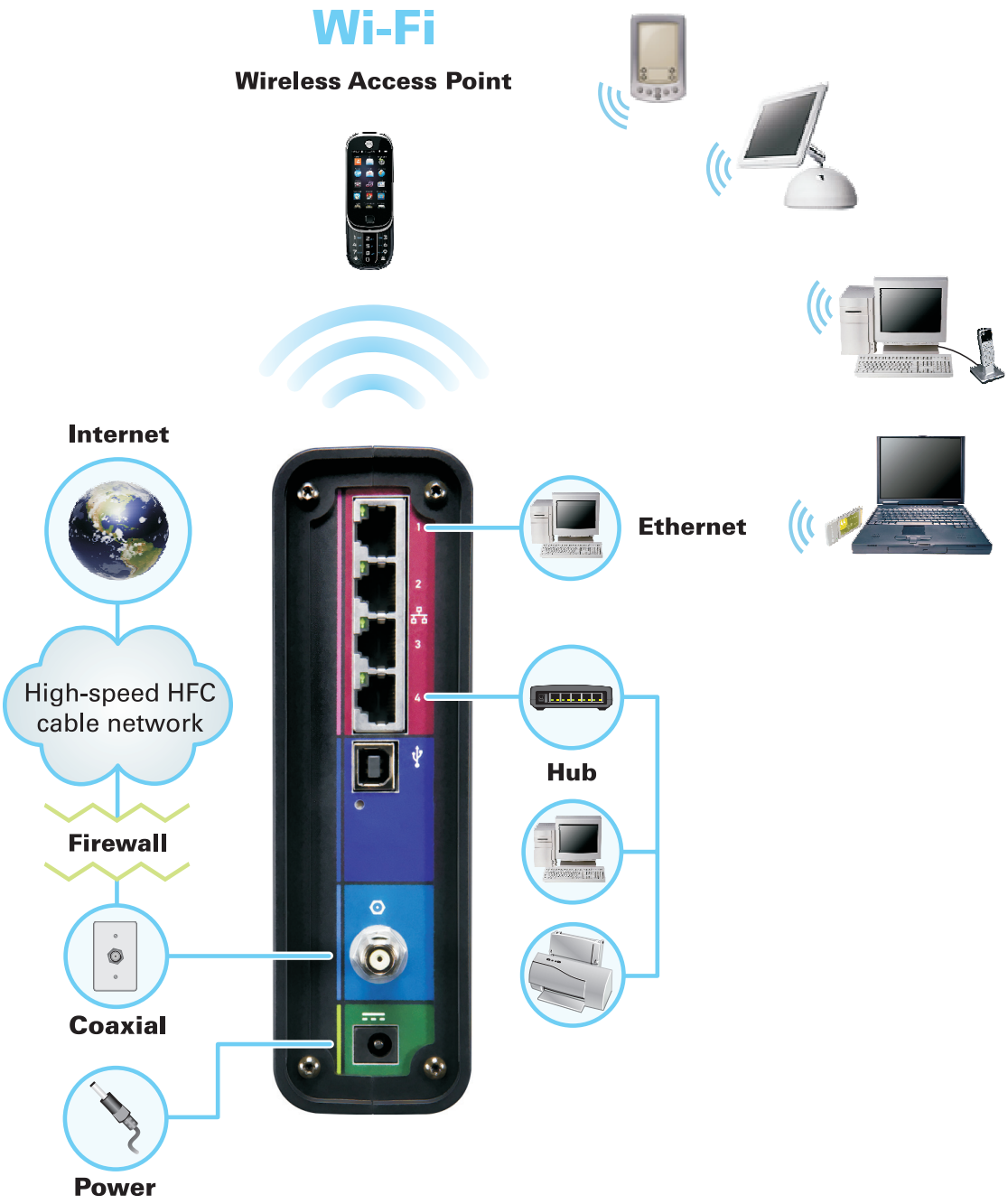
UPSTREAM (CONTINUED)	
Frequency Range	DOCSIS 5-42 MHz (edge to edge), EuroDOCSIS and optional DOCSIS 5 to 65 MHz (edge to edge)
Compatibility	PC: 90496, Pentium, or later; Windows Vista™, 2000, or XP or Linux® with Ethernet connection (older versions of Windows, although not specifically supported, will work with this cable modem) Macintosh: Power PC or later; OS 9 or higher, Ethernet connection UNIX: Ethernet connection Home Networking: Ethernet router or Wi-Fi access point

NETWORK	
Gateway	DHCP, NAT, VPN tunneling; static routing and dynamic IP routing (RIPv1, RIPv2); SPI firewall with DoS protection and intrusion prevention; port, packet, and URL keyword filtering; full suite of ALGs; UPnP IGD 1.0; L2TPv2
Wi-Fi LAN	802.11b/g/n Wi-Fi, WDS bridging, 802.11e WMM admission control, QoS
Power Management	802.11e WMM power save/U-APSD (Unscheduled-Automatic Power Save Delivery)
802.11i Security	WEP-64/128, WPA-PSK, WPA, WPA2, TKIP, AES, 802.1x, 802.11i (pre-authentication)
Wi-Fi Pairing	User-friendly Wi-Fi protected setup (WPS) for connection with WPS compatable device
Regulatory Domains	To include US, Canada, ETSI, World
Transmit Power Output	
IEEE 802.11b	19 dBm +1/–1.5 dB at all rates in all channels
IEEE 802.11g	16 dBm +1/–1 dB at 54 Mbps in all channels
Receiver Sensitivity	> –90 dBm at 11 Mbps; > –74 dBm at 54 Mbps

All features, functionality, and other product specifications are subject to change without notice or obligation.

Plug-and-play

Simple to set up and easy to use—just plug it in and go.



[1] Certain features may not be activated by your service provider, and/or their network settings may limit the feature's functionality. Additionally, certain features may require a subscription. Contact your service provider for details. All features, functionality, and other product specifications are subject to change without notice or obligation. Motorola shall not be liable for, and expressly disclaims, any direct or indirect liabilities, damages, losses, claims, demands, actions, causes of action, risks, or harms arising from or related to the services provided through this equipment.

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Pb-free

RoHS COMPLIANT

MEMBER WiFi ALLIANCE

ENERGY STAR

Powered by an ENERGY STAR® qualified adapter for a better environment